

1. Executive Summary

People across Nunavut want more high-end bandwidth applications to connect to each other for work, arts marketing, meetings, family connections and distribution of video and audio created in Nunavut. These connections build a strong, independent territory as people take control in the knowledge economy.

Corporations want more access to stimulate their business connections. Inuit organizations want more options for direct connections between their offices. School children are desperate for more speed for learning, as networks grind to a halt. Private and public sector users struggling to offset the very high costs for transportation in the north are demanding better access to scarce communications resources as an alternative to travel. Every day, users learn more, and push the edges of all networks in Nunavut.

Adding more lanes to Nunavut's various "network highways" is critical to the future economic health of Nunavut. And equally important is the research, management and training necessary to effectively manage these "network highways" to avoid congestion, disruption and stagnant economic and social growth. This business plan aims to define clearly what is needed, and propose solutions that will meet the needs of Nunavut residents over the long term.

Background

Nunavut residents, businesses, hamlets, Inuit organizations, schools, courts, and health workers rely on the Internet every day to communicate with their friends, families, suppliers, buyers, peers, clients, coworkers and bosses. Many of the people we communicate with live outside our home community, so we rely on the Internet to link our communities together within Nunavut, and beyond. Because there are no roads in Nunavut, people rely fundamentally on the electronic road.

Today, people in Nunavut are connected in all 25 communities - but networks are overloaded as Nunavummiut use every possible GigaByte (GB) available to conduct their daily business. End users (whether schools, corporations, residents, organizations or hamlets) simply cannot pay the direct, high cost of satellite, which is hundreds of times more expensive than bandwidth delivered by fibre networks in the south. What costs \$60 a month in Ottawa costs at least \$6,000 a month in Nunavut - because of the raw satellite bandwidth costs.

Nunavut network operators have become the country's leaders in managing bandwidth, with traffic shaping and GB caps to make the most of scarce bandwidth. But it's not enough. Nunavut needs more affordable bandwidth as we successfully move into the knowledge economy.

But the solution is not to simply throw more bandwidth at Nunavut. We must become the leaders in developing tools that stretch existing and new bandwidth resources even further.

This business plan proposes a series of projects that will meet the specific needs of Nunavut residents – but in new ways. We will use the existing bandwidth and new bandwidth in targeted ways that ensures Nunavut residents can get what they need, at prices they can afford. We will implement new systems to use bandwidth efficiently and effectively in a satellite-served environment – so that we are able to conduct our daily business at a reasonable cost, in a sustainable fashion.

Proponents

The Nunavut Broadband Development Corporation (NBDC) and the Government of Nunavut (GN) worked together to develop this business plan. The proposed projects in this plan address the needs of Nunavummiut for broadband services that fall outside the scope of core Government of Nunavut services.

NBDC has been mandated to serve residents, businesses, Inuit organizations, and municipalities. GN Department of Economic Development and Transportation has supported NBDC in its efforts since 2002 so that broadband services could meet the economic needs of business and residents outside of core government services.

GN Departments of Health, Education, and Justice also have broadband needs that fall outside of core GN services, as they struggle to provide better connections to telehealth users, students of all ages, and the courts.

The Department of Community and Government Services has worked with NBDC to help shape these projects, and will work with NBDC in the procurement process for projects that serve both non-core government users and the public.

Needs

An extensive needs analysis was conducted by NBDC. Over 200 people completed a long survey looking at existing and future bandwidth needs for personal and work use. Workshops were held across the territory, with 50 participants in virtually every sector participating. Government of Nunavut Deputy Ministers and Directors participated in planning meetings with a consultant hired by Indian and Northern Affairs Canada to help define non-core GN needs.

NBDC's personal use surveys produced a clear picture of the extensive use of the Internet. Highlights for personal use included:

MANAGING BANDWIDTH - NUNAVUT'S ROAD AHEAD

- People rely heavily on online banking - highlighting the importance of ensuring reliable access that keeps pace with a southern Internet standards to further encourage economic growth in communities;
- People rely on the Internet to obtain and submit government information - indicating the need to coordinate government activities online with the capacity of the public;
- Few people use Internet for communicating in Inuktitut or sharing Inuit cultural knowledge -- linking the connection between government and Inuit organization language investment and the need to incorporate efforts with Internet use.

NBDC work use surveys provided these insights to guide planning in Nunavut:

- Document collaboration is a primary tool used in the workplace, as people use every available tool to share information, create, and build capacity;
- Large file transfers are commonplace (maps, video, financial data), showing a growing need for better systems to support file transfer effectively;
- Selling products and services online is not materializing, showing the need for targeted support for aggregate marketing and capacity development.

Participants in the NBDC workshops provided concrete needs expressed in terms of broadband tools:

- Need to be able to easily transfer large files (2 and 3 GB) from and to users within Nunavut communities, between Nunavut communities, and beyond for sharing of maps for land use planning, audio and video files (with particular emphasis on Inuktitut language and cultural materials), static training materials (for capacity development) etc.
- Need to connect with others synchronously (live one-way, two-way or multi-way) with audio or video for training and distance education, conducting meetings, selling of product (particularly art), sharing of Inuktitut cultural knowledge, and holding public meetings, etc.
- Need for more knowledge of how to plan and use bandwidth more effectively in a satellite environment, from planning where email is stored, to transferring files efficiently, to bandwidth budgeting, to developing local capacity.

Key findings from Government of Nunavut consultations include:

- Need for teacher professional development related to Inuktitut-language materials and resources being implemented in the school system to meet requirements of the *Education Act and Inuit Language Protection Act*, and the need to invest in additional connectivity to schools and Nunavut Arctic College;
- Need for more and varied career education and for training in trades and mining professions, as mining exploration and implementation increases;
- Need to reduce health travel costs and increase access to essential services as shortage of professionals and costs increase;
- Need for more access in communities to trained staff from the court system to meet the requirements of the *Family Abuse Intervention Act*;
- Need for training more public service workers to meet a representative level of 84% of the population. Currently the GN has a 50% rate of Inuit representation in the workforce.

Staff from the GN departments developed the specific details of needs, and identified opportunities for community-based solutions which would be served under this broadband initiative.

Not every need can be answered by implementing this business plan. For example, more bandwidth will not create Inuktitut language materials. However, appropriate tools for transferring and storing materials will help more people access the materials for language preservation. Bandwidth won't train people, but it is a terrific tool to help in the delivery of education by distance in a program planned and delivered by educators. Bandwidth won't sell Nunavut products, but an integrated marketing program connecting sellers to buyers via reliable broadband connections will.

Combining the needs of the public, the needs of various sectors, and non-core government needs in relation to each other, it is clear that many solutions ideal for one group are also ideal solutions for others. This plan is based on the premise that government, NBDC, vendors and communities can work together to find innovative solutions to challenges are uniquely Nunavut's - the only jurisdiction in Canada that relies entirely on satellite for connectivity.

Building broadband services that meet Nunavut needs

This plan proposes that broadband services in Nunavut include the requirement of educating broadband users and IT support staff to better plan and use bandwidth efficiently.

More specifically, there are four main needs that have been identified under this business plan.

1. Access to the Internet:

Everyone in Nunavut, the public when at home, when at work and in school must have adequate access to the Internet in all 25 Nunavut communities. This Business Plan proposes projects that augment Internet access in all Nunavut communities and improves Internet access in all Nunavut schools.

2. Meet Online Services:

This project enables a range of synchronous audio, video and document sharing services to connect users for one-to-one conversations, one-to-many sessions and many-to-many conferences, meetings, consultations and learning opportunities.

Users would go online, select the level of service they need (audio, video, document sharing), obtain costing, and book sessions, according to their need and their budget - just as one would book an airplane seat. Vendors would allocate the bandwidth the users need for their session, so the session would be properly supported.

Regardless of whether a user was booking a meeting for an Inuit organization, setting up a webcast session, booking a telehealth session, or conducting training, users would define what they need, when they need it, and pay a significant portion of the real cost of the session.

3. Time Shift Services:

Time Shift Services would provide menu driven access to facilitate large file transfer and allow for priority immediate delivery, or more economical overnight or weekend delivery for more efficient bandwidth use. This service would require servers in communities for storage and local access to previously delivered material.

People with heavy data transfer requirements could better manage their data transfers - from video uploads from small communities, mapping data updates onto servers, to Inuktitut curriculum materials distribution - users would determine when and how to move their data, and where to store it for efficient distribution and access. People wishing to access data stored locally in their community would be able to download the data, without hitting the satellite. Faster, cheaper and better.

4. Local Connect:

Every community in Nunavut is at the end of a satellite road. Many communities have both an Ardicom network system, and the QINIQ network. But when someone from the Ardicom network sends a file to someone on the QINIQ network in the same community, the

file goes all the way to the Internet backbone for sorting, and returns to the community - an unnecessary waste of bandwidth.

Every community needs a “local connection” - that links the various networks operating in a community so files can be stored locally, and shared locally. “Local Connect” is a project that will enable “Time Shift” to work, enable “Meet Online” to work. It will enable all network planners to better manage bandwidth.

Implementation

To implement the projects identified in the Business Plan this document proposes that two separate RFPs be issued as follows:

- an RFP be issued by the Government of Nunavut (using its normal processes) for improved connections for all Nunavut schools to the Internet. When completed, assistance from Canada will be applied to this important activity.
- For all the other identified needs in the public and the private sector, it is proposed that an RFP be issued by NBDC with advice and counsel from the Government of Nunavut. This NBDC RFP will cover the three generic projects proposed for use by all sectors. This single RFP will have separate sections for each of the generic services and will invite vendors to propose solutions for one or more of the separate services. Where possible contracts will be awarded to more than one qualified vendor so that users of these services can select the vendor best suited to their needs.

Financial

[This document reflects a submission to the Government of Canada and others. Details of the financial section will be made available after an agreement is reached with the potential investors.]

Summary

This Business Plan outlines an innovative but low risk plan for providing Canada contributions for all sectors of the Nunavut economic and social sectors while building on the strengths of the private sector and encouraging the growth of Nunavut-based services and skills. We believe that Nunavut can lead the way in managing satellite resources for remote communities and we strongly recommend this Business Plan as the next major step in meeting the challenges of the next few years.